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The instant invention concerns a general choke for a air-leading mechanism with at least two ducts flying over a common muzzle range and in particular a choke for a vehicle heating, a ventilation, and/or air conditioner. With the two ducts having a common muzzle range it can concern exemplarily on the one hand the fresh air or cool air path and on the other hand the warm air path, is arranged in which the heating heat exchanger, whereby the common muzzle range in this case becomes frequent mixing zone mentioned, while the choke becomes usually with this application air mixture flap mentioned.

At present known air mixture flaps are usually arranged of the butterfly type and are in such a manner in the mixing zone that becomes disabled in a terminal position the Warmluftkanal, while becomes disabled in another position the Frischluftkanal. In the stored temporarily positions the possible air mixture flap depending upon position the passage of air from both ducts. In the intermediate positions the two ducts stand both for flowtechnical river-upward-located and the river-downward-located flap with one another in connection, so that beside the desired air blending in the mixing zone also an interference in each case of the different air passageway can take place via back pressure formation.

Furthermore such air mixture flaps cause frequent undesired noises and do not make it possible also with some applications not to release the desired light cross section of the ducts standing in question.

Beside the air mixture flaps specified above from the butterfly type z are in the motor vehicle range for other applications. B. to the selection of fresh air and circulating air in air conditioners so called bowl flaps known (DE-A-42 28,866). These so called bowl flaps lead frequent within the closing range to the noise creation and require a significant fitting space, why one this type at chokes rare used, despite the fact that they make a permanent separation possible of two air passageways ending within a common muzzle range.

It exists therefore for a long time a need for a choke, which can prevent a mixture of air in ducts before the same with constructional simple structure, whereby is to become released in open positions as large a cross section as possible and whereby in this position the noise creation should be minimized.

This object becomes according to invention by a choke with the features of the claim 1 dissolved. Preferable embodiments are in the dependent claims defined.

In particular the invention suggests a choke for a air-leading mechanism, in particular vehicle heating a ventilation and/or an air conditioner with at least two ducts flying over a common muzzle range, whom covers a range, to the one sealing separation of a part of the muzzle range with each position of the choke possible, whereby the range is a small as the surface of the choke. As a range becomes the seal between the two ducts used, a mutual interference of the air flows, z can. B. by a back pressure formation effective prevented becomes, whereby the dimensioning of this range as only a portion of the entire flap the effective release of light cross sections and the noiseless positioning in the open positions possible.

Favourable way essentially corresponds the range part to a hydraulic cylinder barrel-flat, so that the dense function can be simple formed as plant seal, which can become exemplary formed by sealing lip or another elastic deformable member.

In order to be able to reduce the noise creation when moving by air at the choke more other, it is possible to assign to the range on that the axis of rotation associated side an air conducting surface which preferred in particular can extend long-like concerning the hydraulic cylinder barrel-flat.

Apart from noise one is fact which can be considered in the surrounding field of heating, ventilation and/or air conditioners the flow resistance, why the surface of the flap favourable-proves formed as an adapted air conducting surface flowtechnical for the terminal positions is. Thereby the aerofoil z differing from case to case can. B. in the mixing zone considered become.

The surface of the choke can essentially exhibit at least one planar portion, or be also altogether essentially planar or planar formed. Planning planar portions possible it to close in effective manner of cross sections from air passageways to whereby in the Offen-Stellungen an aligned resting against walls of the air-leading mechanism possible are.

Favourable way is the surface of the flap in the section essentially S-förmig formed. By such an embodiment can become in arbitrary positions a favourable flowing against edge on the one hand and an improved plant behavior in the closing or terminal positions obtained.

In order to be able to release still larger cross sections, it is from advantage, if one plans the surface of the flap spaced to the axis of rotation of the flap. To a certain extent the choke from standing in each case the duct in question can be swung out by this embodiment to a certain extent with the folding movement.

Furthermore it is preferred that the effective area in the terminal positions becomes essentially formed by the range and in each case itself a range subsequent to it. The transition between the range and itself the subsequent ranges can form different angles depending upon configuration, whereby also the ratio can become the corresponding constructional defaults varied.

Finally it is preferred that the air flow, the flow rate and/or the pressure affecting mechanism provided are. Such a

mechanism can cover single or in combination a ramp shaped guide vane, a guidance rib or a bulkheading acting in the type weir. This embodiment is in particular favourable for such positions of the choke, in which an air flow substantial precipitates smaller than the other air flow, z. B. in a position close to one of the terminal positions. In such situations a altogether satisfactory mixture of the air flows can become achieved, whereby in particular also the possibility is given to obtain certain temperature stratifications or temperature profiles.

Other advantages and features of the instant invention result from the subsequent only exemplarily indicated description from at present preferable embodiments, which on the accompanying designs respect takes, in which apply:

Fig. 1 shows schematic in sectional view a part of a air-leading mechanism with a choke according to invention in accordance with a first preferable embodiment.

Fig. a view, similar points 2 to Fig. 1, of a second preferable embodiment.

Fig. a development shows 3 in Fig. 2 illustrated embodiment.

Fig. an other embodiment of a choke according to invention points 4 in a air-leading mechanism in a view similar to the Fig. 1-3.

Fig. a development shows 5 in Fig. 4 illustrated embodiment.

Fig. schematic shows 6 in a sectional view the part of a heating, a ventilation and/or an air conditioner with an air mixture flap as preferable embodiment of the choke according to invention.

Fig. 7 shows in Fig. 6 air mixture flap shown in perspective view.

Fig. a development of a choke according to invention shows 8 in perspective view.

Fig. 9 shows in Fig. 8 choke shown in elevational view.

In Fig. 1 is the part of a heating air conditioning system as air-leading mechanism shown. This covers wall sections 3, S. the one outlet duct 6 as well as a Warmluftkanal 4 and a Frischluftkanal 2 define. Between the cool air channel and the Warmluftkanal a heating heat exchanger 9, is 10 arranged above which an air mixture flap, is concerning. an axis of rotation 11 pivoted will can.

In the illustration the air mixture flap 10 solid in an intermediate position, broken in the fresh air position is gepunktstrichelt and in the warm air position shown, whereby corresponding arrows show the air flow for the respective positions. In order to make a seal available between the ducts 2 and 4, a sealing member is 8 provided above the heating of heat exchanger 9, with which a section 12 of the choke 10 stands in engagement. The range 12 is in the illustrated embodiment the essentially radial as half-hydraulic cylinder barrel-flat formed, whereby this range 12 two laminar elements 14, 16 follow, itself concerning. the axis of rotation 11 extend.

Like shown, the choke 10 in the warm air position (broken shown) at the wall section 5 fits and to prevented thus that by the heat exchanger 9 stepped air can step into the outlet duct 6. After in each position a sealing engagement between the sealing member 8 and the range 12 exists, the entire fresh air of the duct 2 in the position mentioned of the choke becomes 10 the outlet duct 6 guided.

In the other terminal position (semicolon-like shown) the other laminar section 16 rests to the choke 10 against the wall section 3, so that air exclusive can arrive after passage of the heating heat exchanger 9 at the exit aperture 6. As from the fig significant is to be recognized, a sealing separation between the ducts 2 and 4 exists, to that extent one the flowtechnical air mixture flap 10 pre-aged range considered in each position of the choke 10. Furthermore it is to be recognized that with arbitrary positions large cross sections released can to become to be able, and the choke at least in the terminal positions flowtechnical be present favourably and thus noise-reducing.

In Fig. 2 is similar as in Fig. 1 a part of a heating air conditioning system shown, whereby again a choke according to invention is above the heating heat exchanger 9 in such a way provided that a sealing engagement between the range 12 and the sealing member is present. In contrast to in Fig. 1 illustrated embodiment are only the terminal positions once broken and once shown, whereby the planar portions 14, with solid lines, 16 in a plane extend, which does not run by the pivot axis 11. As significant is to be recognized, the total area of the choke becomes 10 from the ranges 14, 16 and the range 12 formed, so that the range is smaller according to invention 12 as the whole area of the choke.

Furthermore particularly good recognized can become in this illustration that the effective area in the respective terminal positions becomes essentially formed from the range 12 and either the section 14 or the section 16, depending upon position of the choke.

Fig. a development shows 3 in Fig. 2 illustrated embodiment, which consists of the fact that that is the axis of rotation 11 directed cavity formed by the range 12 by an air guidance element 18 sealed, so that the choke is 10 altogether essentially planar formed with a cylinder segment respective region 12, which the seal ensured.

The Fig. 4 and 5 shows other embodiments the corresponding illustrations of the Fig. 3 and 4, whereby between the range 12 and the sections 14, 16 acute angles formed are, whereby can become still enlarged in the terminal positions the light cross section, as is to be recognized.

In Fig. 6 is still another other heating air conditioning system schematic in the section shown, which has like preceding a Frischluftkanal 2 and a Warmluftkanal 4. As is the case for the preceding embodiments the air mixture flap is 9 arranged above the heating of heat exchanger and stands for related bottom interposition of a sealing member 8 over the range 12 in engagement. In the illustrated embodiment is S a förmige flap air conducting surface provided, those, like shown, a flowtechnical optimized profile in the respective terminal positions possible. Furthermore significant one is to be recognized that the axis of rotation spaced is present to the effective flap-flat, so that pivoted with a rotary motion the effective area becomes practical from the respective air passageways.

Fig. 7 shows in Fig. 6 choke shown in perspective view, whereby the range 12 with side walls 19 is provided, in order to make possible also a lateral air circulation and seal.

Fig. a development of a according to invention of a choke shows 8 in perspective view, with which the air flow, which is flow rate and the pressure affecting mechanism 20, 22, 24 provided, which consists in the represented example of three sections, also in each case the single, D. h. without those in each case different two to the use to come could. The first section forms a guidance rib 20, which itself essentially vertical to the choke extended and concerning, the flow direction oblique provided is. By this guidance rib a flowlaterally relative low flow rate or also a relative low pressure at the diverting side of the choke can become increased. Furthermore the location can become changed on the basis the upper profile of this guidance rib, at which the two Luftströmungen step with one another into contact, so that an effective blending can become the corresponding geometry achieved. A second section, which serves likewise to change the flow rate the respective flow direction and the pressure ratios is 24 formed by a sprungschanzenförmige guide vane, those in the represented example itself with increased deflection of the too leading air the corresponding guidance rib 20 tapered. Furthermore a bulkheading is 22 shown, which simple is in the form of a wall formed, itself the essentially vertical to the choke and the flow direction extended.

The fact that the mechanism from three into one another adjacent portions is 20, 22, 24 formed results also from the elevational view of Fig. 9, whereby it is to be marked that the represented mechanism is to be only regarded as exemplarily, since it could exist in particular also only from the guidance rib 20, the guide vane 24 or the bulkheading 22 optional supplemented by one of the two other sections or also by other appropriate means, in order to optimize the aerofoil, the flow rate, the pressure and the mixture of the two air flows, in particular for states, resultant from this, where the choke according to invention is present of only slight offset from one its extreme positions. Finally one can the elevational view of Fig. 9 still take that with that illustrated embodiment the sections 14 and 16 of the choke subsequent to the sealing range 12 are of various sizes here. Various embodiments are also here concerning. Size and geometry possible.

It can recapitulatory be stated that the choke according to invention can release a separation between two air passageways up to a location after the choke possible and the respective ducts in such to a way that only extremely small flow resistances exist. Although the instant invention became preceding exemplarily bottom reference on at present preferable embodiments complete described, the expert should recognize that most diverse changes and modifications are in the frame of the claims possible. The expert should also recognize that single features of an embodiment are combinable of arbitrary with other features other embodiments. Finally it is to be still marked that, although the preceding range became exemplary 12 as part of a cylindrical surface described a corresponding embodiment would be likewise possible as ball portion.